Capability Gap Brief

Combat Camera in support of Information Operations

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Top Ten Gap Listing

FMID Section	Priority
Unmanned Aircraft Systems	1
Assault Support	2
Target Acquisition	3
Counterfire / Targeting	4
Fire Support Coordination	5
Information Operations (COMCAM is a primary support activity)	6
Personal Equipment	7
Small Arms / Crew-Served	8
Mobility / Counter-Mobility	9
Rockets / Artillery	10
Riverine / Special Operations	11
Public Affairs (COMCAM is a primary support activity)	12
Offensive Air Support	13
Electronic Warfare	14
Civil Affairs (COMCAM is a primary support activity)	15
Offensive Anti-Air Warfare	16

Combat Camera ISO Information Operations Combat Assessment

JCA: 9.2.0.0 Provide and Employ Joint Fires
MCT: 3.1.6. Assess/Conduct combat assessment
Deficiencies in Conditions: Unable to provide adequate and timely ground based combat assessment without appropriate data transport.
Deficiencies in Standards: No defined JCIDS requirement to establish support baseline.
Possible DOTMLPF implications: COMCAM will require Doctrine changes plus additional Personnel, Training, and Equipment.

Inputs utilized for analysis:
- MAGTF FAA dtd Jun 2006
- FMID FNA
- Lessons learned database
- Tactical Imagery Production System (TIPS) Statement of Need dtd May 4, 2006
- Various UNS/UUNS
- MC Operational Concepts for Changing Security Environment

Gap, Excess, or Shortfall

Imagery Production Equipment	(S) Current POR provides no sustainment funding
Imagery Management	(S) Imagery outside of COMCAM managed incorrectly or not at all
Imagery transmission	(G) Programmed funds do not support transmission from acquisition point to management point for timely distribution
Forces supported	(S) MAGTF (ALL), MARFORPAC, MARFORRES, MEF, Division, Wing, MLG,

Current POR

Audiovisual Production Equipment (AVPE)-

Individual digital still and video acquisition, production and management equipment for use by Combat Camera personnel.

MAGTF capability gap

- **Gap was identified by**
  - **Comparison of UUNS/UNS to current operational experience and Lessons Learned during the FNA analysis**

- **Why the Marine Corps should mitigate**
  - **Imagery management/transport will maximize MAGTF support**
  - **Equipping will enable MC to meet current imagery demands in support of situational awareness and decision-making**

- **How this gap impacts our ability to execute operating concepts**
  - **Adversaries continue to have battlefield shaping advantage**
  - **MAGTF information operations will rely on old information**
  - **Deprives chain of command of timely imagery for info for situational awareness and decision-making tools**

Key Attributes Needed to Resolve the Gap

- **Scalability (gap coverage), Quality, Agility (expeditionary), and Timeliness (second/minutes vice hours/days)**
  - **Scalable, networked imagery management**
    - **Field imagery systems networked to imagery management points offer including publish/subscribe options to the COI**
    - **Higher capability systems at major headquarters can provide imagery to any staff sections on demand: C2, Intel, civil affairs Public Affairs, and archives**
  - **Regionalizing collection centers to collect imagery from forward sites**
    - **An array of links could transport/relay captured imagery to higher echelons. With imagery management tools, speed and distribution options increase efficiencies significantly**
  - **COMCAM to exploit train-the-trainer strategies**
    - **Eliminate reliance on School house requirements,**
    - **Avoid TAD costs and operational unit time loss**
  - **Local employment of COMCAM personnel**
    - **Provides broad coverage to enhance responsiveness to tasking**
    - **COMCAM take cameras in caves, bunkers, palaces, enclaves, etc.**

Key Attributes Needed to Resolve the Gap

- **Identify the key attributes and associated measures of performance and effectiveness a solution will possess.**
  - **Field still and video acquisition**
    - **Ground based digital still and video acquisition up to 300 meters.**
    - **Locally employed personnel to provide broad coverage and responsive imagery acquisition.**
  - **Scalable, mobile imagery production and reproduction**
    - **Field laptop based imagery editing stations with digital and/or printed production capability as needed by mission requirements.**
    - **Container based high quality/high volume digital and printed production capability with MSC and higher command elements.**
  - **Global transmission for production systems**
    - **Capability to globally disseminate digital still and video imagery and imagery products to meet operational and planning needs.**
  - **Professional imagery editing and creation**
    - **Production capability to create and provide high quality imagery products to support the commanders' imagery needs.**

Current Capability Issues

- **Man-packable broadband transmission**
  - **The technology used to transmit imagery from the acquisition point to the COMCAM production and/or management point has a high cost due to use of commercial satellite time and satellite transmitters.**
  - **Must comply with Net-Centric Environment**
- **Imagery management**
  - **COMCAM is not the only element capturing imagery**
  - **A significant amount of imagery is captured and not maintained for future needs.**
- **Responsiveness**
  - **Imagery needs are not always identified during planning processes. This creates an environment where COMCAM personnel are reacting to operational developments and not capturing the imagery needed for operational use.**

Current Capability Issues cont.

- **Scalable mobile imagery acquisition, production, management and distribution**
  - **Current systems have been developed without higher guidance and are now facing integration issues.**
- **Requirements development**
  - **Requirements development for COMCAM had little to no input from COMCAM personnel prior to 2002.**
  - **POM-10 process is the first time COMCAM community has been able to provide input during the entire evolution.**

Current Capability Issues cont.

- **Is there a similar Joint capability gap being analyzed. Possibly, but not in the same context.**
- **Is this capability MC unique. Yes**
  - **MC TTP Methods for employing COMCAM is unique**
  - **Army, Navy, AF pool COMCAM staffs and provide detachments to rear areas HQs in response to operational tasking**
  - **All service have an imagery management issues. There are COTS tools available to provide imagery management capability. Expeditionary or ruggedized versions would work for MC**

Intelligence Integration Division integration concerns

Gap #	JCA	MCTL/***IID Section***	Description of Capability Gap by Task	G/E/ S/N	Gap Mitigation	
					POM-10	Beyond
2	**4.2.0.0 Observation and Collection (All Domains)**	**2.2 Collect data and intelligence**	**Limited ability to establish and maintain a persistent, multi-sensor collection architecture to enable a covert, "unblinking eye" view within a defined battlespace.**	S	**X**	
3	**5.3.1.0 Access and Share Intelligence Information and Forecasts**	**2.1 Plan and direct intelligence operations** **2.4 Produce Intelligence**	**Limited ISR data visibility and accessibility and database synchronization between USMC units/ organizations, other Services, Theater elements, coalition partners and government/non-government organizations external to the DoD.**	S	**X**	
4	**14.4.0.0 Unconventional Warfare**	**2.2 Collect data and intelligence**	**Limited ability to collect on rapidly changing threat signals of interest – refer to the following Joint Worldwide Intelligence Communication System (JWICS) http://www.itsfac.mcia.ic.gov/ MCISR-E**	S	**X**	

Intelligence Integration Division integration concerns

Gap #	JCA	MCTL/***IID Section***	Description of Capability Gap by Task	G/E/ S/N	Gap Mitigation	
					POM-10	Beyond
7	**4.4.4.0 Intelligence Preparation of the Environment** **8.0.0.0 Joint Logistics**	**2.2 Collect data and intelligence**	**Limited ability to collect in restricted (urban, subterranean), terrain through camouflage, and in all weather conditions.**	S	**X**	
8	**14.0.0.0 Joint Special Operations and Irregular Warfare**	**2.2 Collect data and intelligence**	**Inability to remotely collect inside buildings or through walls on convention/ non-conventional threat force personnel.**	G	**X**	

Fires and Maneuver Integration Division integration concerns

Gap #	JCA	MCTL/***FMID Section***	Description of Capability Gap by Task	G/E/ S/N	Gap Mitigation	
					POM-10	Beyond
1	**Provide and Employ Joint Fires**	Assess/Conduct Combat Assessment/ ***Unmanned Aircraft Systems***	**Interoperability limited by capabilities of CAC2S. Tier I and II need POM 10 continuance or capability will be lost. New start required for Tier III capabilities.**	S	**Y**	**Y**
4	**Foreign Internal Defense** **Peace operations**	Conduct SASO/ ***Information Operations***	**Capacity gap in imagery management. Capability gap in PSYOP and CNO. Capability and capacity gaps in IO coordination function.**	G	**Y**	**Y**
7	**Provide and Employ Joint Fires**	Assess/Conduct Combat Assessment/ ***Information Operations***	**Interoperability gaps in joint dissemination. Capacity gap in imagery management. Capability gap in PSYOP and CNO. Capability and capacity gaps in IO coordination function.**	G	**Y**	**Y**
9	**Foreign Internal Defense** **Peace Operations**	Conduct SASO/ ***Civil Affairs***	**Capacity gap in personnel because CA units in RC. Capability gap due to absence of uniform training standards and access to formal CA schools, and wrong mix of small arms.**	G.S	**Y**	

Command and Control Integration Division integration concerns

Gap #	JCA	MCTL	Description of Capability Gap by Task	G/E/ S/N
4	**Networking**		**Gap in the ability to operate C4I systems on-the-move and over-the-horizon**	G
5	**5.3.0.0 Develop and Maintain Shared Situational Awareness and Understanding** **5.3.2.0 Employ blue force tracking capability** **19.1.1 Peace Operations**	**5.1.3.2 Provide Positive ID of Friendly Forces in the AO**	**MEF and below -Shortfall: Inadequate numbers of devices to meet desired fielding density to provide comprehensive blue force picture.**	S
10	**5.3.0.0 Develop and Maintain Shared Situational Awareness and Understanding** **5.3.2.0 Employ blue force tracking capability** **19.1.1 Peace Operations**	**5.1.3.2 Provide Positive ID of Friendly Forces in the AO**	**"MEF- IA GAP: Current FBCB2-BFT L-Band Satellite network does not use NSA certified encryption."**	G

Integration Concerns

- **Describe critical linkage(s) to other Integration Division. If none, so state.**
  - **Integrating imagery information with existing and future systems will require coordination:**
    - **Cockpit designs seem to have selected a display screen in the central region of the instrument display. COP, Maps with Red, Blue and Grey overlays, internal status sensor display and touch sensitive screens are becoming the norm**
    - **Developing a network to provide imagery from battlefield distributed COMCAM resources will require full Net-Centric configuring to integrate the image gathering equipment directly or from imagery management sites.**
    - **Ground element will be able to receive/provide similar image data on demand**

Possible DOTLPFM Impacts

- **Doctrine.**
  - **Effect on gap – partial resolution**
  - **What published doctrine addresses the capability? MCWP 3-33.7, MTTP 3-33.7A, MCO P5600.31**
  - **What doctrinal changes result from new technology or devices with enhanced capabilities being introduced to mitigate this gap? Revision will focus on inserting doctrine that exploits COMCAM capabilities/products as well as employment options and decision effectiveness**

- **Organization**
  - **Effect on gap – partial resolution**
  - **4600 Occupational Field has recently completed the first phase of re-base lining the entire field. The objective is an OPFOR to Support Element ratio of 70% to 30%.**

DOTLPFM Impacts

- **Training**
  - **Effect on gap – A partial resolution. This creates the largest change in current practices**
  - **How could training be modified or provided to mitigate or eliminate the gap? A train-the-trainer approach will provide affordable technical and management knowledge and generate more qualified professionals, quickly.**
  - **What training requirements are identified for the fielding of new equipment? Printer maintenance and imagery data transmission techniques.**
  - **Who can provide the required training?**
    - **Printer maintenance needs to be performed at the Original Equipment Manufacturer IOT avoid warranties issues on high dollar equipment.**
    - **Transmission techniques can be promulgated using train-the-trainer.**

DOTLPFM Impacts

- **Leadership and Education**
  - **Effect on gap – partial resolution**
  - **Leadership experience/change will enhance COMCAM operational support.**

- **Personnel**
  - **Effect on gap – partial resolution**
  - **MEF CE, MLG and MEU have partial COMCAM capability**
    - **An addition of approx 50 bodies would even out COMCAM capability across the OPFOR.**
  - **Can MOS realignment mitigate the gap? No, recently combined lithographer and illustrator MOS's into an imagery production specialist**

- **Facilities**
  - **Effect on gap – partial resolution**
  - **Are there theater facilities required?**
    - **Constant power supply**
    - **Climate controlled space**
    - **Secure storage for high value COTS gear**
  - **No MILCON sized requirements**

DOTLPFM Impacts

- **Materiel**
  - **Effect on gap – partial resolution**
  - **Are there current materiel solutions available to mitigate the capability gap?**
    - **COTS man-packable transmitter for imagery transport**
    - **COTS scalable imagery mgmt software for use at various organizational levels**
    - **COTS compatible camera, editing & production equipment**
  - **Are there any current service/joint solutions available which meets the requested capability? No**
    - **MC employment of COMCAM unique (only service needing mobile imagery production and printing system at tactical level)**
  - **If new start describe recommended solutions.**
    - **N/A**
  - **If recommended solution is a material solution describe DOTMLPF implications. See previous slides.**

Possible Solutions
Non-Materiel/Materiel

- **Re-allocation of sufficient bandwidth for continuous access to C2 or target sensory feed networks imagery data for operational use (C2, BA, Weapon effectiveness, et al) to assure time sensitive information flow**
  - **Imagery bandwidth needs don't compete with bandwidth needed for commanders COP**
  - **Allows SOP development and application of technology to maximize allotted bandwidth**
  - **Leverages point of presence networks**

Possible Solutions
Non-Materiel/Materiel

- **COMCAM satellite link to provide regional broadband transmission capability. Intent is to relay imagery from acquisition point to higher capacity distribution system.**
  - **Provides on the move satellite connection**
  - **Minimal delay for inputting imagery to distribution system**
  - **High quality imagery transmitted**

Possible Solutions
Non-Materiel/Materiel

- **Use of Train-the-Trainer will partially reduce staffing and funding deficiencies by:**
  - **Eliminating use of centralized school houses**
  - **Reducing TAD/Travel expenditures**
  - **Employ Marine Unit Training techniques which emphases hands-on training with same equipment as OPFOR units**
  - **Keeps marines in the organic operational units**
  - **Requires instructors to be actively involved and proficient in order to effectively conduct training**
  - **Maximizes return on investment for advanced courses taught at civilian schools**

Possible Solutions
Non-Materiel/Materiel

- **Maintain employment of COMCAM personnel at tactical level**
  - **Enhances imagery responsiveness**
  - **Builds creditability with supported unit**
  - **Captured imagery is authentic**
  - **Increases odds critical events are documented**

Possible Solutions
Non-Materiel/Materiel

- **Approve above core request for POM 10**
  - **Provide O&M funding to sustain COMCAM equipment**
  - **Pay for man-packable satellite transmitters for COMCAM teams**
  - **Pay for commercial satellite time if military system not adequate**

Recommendation

- **Re-allocate percentage of bandwidth for imagery transmission**
- **Add man-packable transmitter to COMCAM T/E**
- **Change training methodology to train the trainer process**
- **Approve COMCAM concept of employment**
- **Provide sustainment funding for COMCAM equipment**